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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,799	04/15/2004	Marshall Thomas DePue	10030184-1	1464

57299 7590 05/18/2007

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EXAMINER	
LEWIS, DAVID LEE	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
05/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,799	DEPUE ET AL.	
	Examiner	Art Unit	
	David L. Lewis	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/2/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claim 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Oliver et al. (2005/0190157).**

As in claim 1, Oliver et al. teaches of an optical device**, figures 1 and 2,**

comprising: a first light source that emits first light onto a surface, **figure 1 item 29**;

and a first detector that receives light reflected from said surface, **figure 1 item 35**

wherein reflected light produces a first speckle pattern at said first detector with said optical device and said surface separated by a first distance, **paragraph 30-31**,

wherein a quantifiable attribute associated with said first speckle pattern is used to measure distance between said optical device and said surface, **paragraph 30-31**.

As in claim 2, Oliver et al. teaches of wherein reflected light produces a second speckle pattern at said first detector with said optical device and said surface separated by a second distance, wherein said quantifiable attribute associated with said first speckle pattern and a quantifiable attribute associated with said second speckle pattern are used to measure distance between said optical device and said surface, paragraph 38-41.

As in claim 3, Oliver et al. teaches of wherein the ratio of said quantifiable attribute associated with said first speckle pattern and said quantifiable attribute associated with said second speckle pattern is used to measure distance between said optical device and said surface, paragraph 38-41

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 4-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliver et al. (2005/0190157) in view of Theytaz et al. (2005/0231482).**

As in claim 12, Oliver et al. teaches of a method of optical navigation using an optical device, **figures 1 and 2**,

said method comprising: detecting at said optical device a first speckle pattern produced by light comprising light at a first wavelength reflecting from a surface with said optical device at a first distance from said surface, **figure 1 item 35 and 29, paragraph 30 and 31**;

detecting at said optical device a second speckle pattern produced by light reflecting from said surface with said optical device at a second distance from said surface, **paragraph 38-41**,

However Oliver et al. fails to teach of a second wavelength and wherein said first and second wavelengths are selected so that a first quantifiable value associated with said first speckle pattern and a second quantifiable value associated with said second speckle pattern are approximately equal; and measuring distance between said optical device and said surface using the ratio of said first and second wavelengths.

Theytaz et al. teaches of a second wavelength, **paragraphs 53 and 54**

and wherein said first and second wavelengths are selected so that a first quantifiable value associated with said first speckle pattern and a second quantifiable value associated with said second speckle pattern are approximately equal, paragraph 68-70; and measuring distance between said optical device and said surface using the ratio of said first and second wavelengths, **paragraphs 68-70**.

As is known in the art and taught by Oliver et al. the speckle pattern can be used to determine the separation distance between the device and the surface, because a known relationship exists between the contrast of the speckle pattern and the separation displacement. While Theytaz et al. does not mention the separation distance between the device and the surface, said distance is

incorporated into the performance index which depends on the surface characteristic, feature detection, intensity of reflected light, and the like. **It would be obvious for the skilled artisan to combine the features of Oliver surface** measurement with Theytaz et al.'s performance index because they are both used to make surface measurements based on the speckle pattern. The relationship of speckle pattern to distance is used for the purpose of detecting the distance of the device from the surface received speckle pattern. Further the sensor and dector systems of both Oliver et al. and Theytaz et al are applicable to each others device because the both represent known alternatives for providing measurements of speckle patterns for the purpose of providing a optical pointing device as found in claim 12.

As in claim 18, Oliver et al. teaches of in an optical device, a method of optical navigation, said method comprising: detecting at said optical device a first speckle pattern produced by light comprising light at a first wavelength reflecting from a surface, **figure 1 item 35 and 29, paragraph 30 and 31**; detecting at said optical device a

second speckle pattern produced by light comprising light reflecting from said surface, **paragraph 38-41**;

However Oliver is silent as to said measuring distance between said optical device and said surface using a first quantifiable value associated with said first speckle pattern and a second quantifiable value associated with said second speckle pattern.

Theytaz et al. teaches of said second wavelength, **paragraphs 53 and 54,**

And said measuring distance between said optical device and said surface using a first quantifiable value associated with said first speckle pattern and a second quantifiable value associated with said second speckle pattern, **paragraphs 68-70**.

As is known in the art and taught by Oliver et al. the speckle pattern can be used to determine the separation distance between the device and the surface, because a known relationship exists between the contrast of the speckle pattern and the separation displacement. While Theytaz et al. does not mention the separation distance between the device and the surface, said distance is incorporated into the performance index which depends on the surface characteristic, feature detection, intensity of reflected light, and the like. **It would be obvious for the skilled artisan to combine the features of Oliver surface** measurement with Theytaz et al.'s performance index because they are both used to make surface measurements based on the speckle pattern. The relationship of speckle pattern to distance is used for the purpose of detecting the distance of the device from the surface received speckle pattern. Further the sensor and dector systems of both Oliver et al. and Theytaz et al are applicable to each others device because the both represent known alternatives for providing measurements of speckle patterns for the purpose of providing a optical pointing device as found in claim 18

As in claim 4, Theytaz et al. teaches of wherein said first light is adjusted from a first wavelength at said first distance to a second wavelength at said second distance so that said quantifiable attribute associated with said first speckle pattern and said quantifiable attribute associated with said second speckle pattern are approximately equal, wherein the ratio of said first and second wavelengths is used to measure distance between said optical device and said

surface, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 5, Theytaz et al. teaches of further comprising a second light source adapted to emit second light onto said surface, said first light comprising light at a first wavelength and said second light comprising light at a second wavelength that is different from said first wavelength, wherein said first speckle pattern is produced by reflected first light and said second speckle pattern is produced by reflected second light, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 6, Theytaz et al. teaches of wherein said first and second wavelengths are selected so that said quantifiable attribute associated with said first speckle pattern and said quantifiable attribute associated with said second speckle pattern are approximately equal, and wherein the ratio of said wavelengths is used to measure distance between said optical device and said surface, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 7, Theytaz et al. teaches of further comprising: a second light source adapted to emit second light onto said surface, said first light comprising light at a first wavelength and said second light comprising light at a second wavelength that is different from said first wavelength, figure 6A item 250a/b; and a second detector adapted to receive light reflected from said surface, wherein said first speckle pattern is produced at said first distance by reflected first light received by said first detector and wherein a second speckle pattern is produced at said first distance by reflected second light received by said second detector, wherein the difference between said quantifiable attribute associated with said first speckle pattern and quantifiable attribute associated with said second speckle pattern is used to determine said first distance, paragraph 40, paragraph

68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 8, Theytaz et al. teaches of wherein said quantifiable attribute associated with said first speckle pattern corresponds to the average speckle size of said first speckle pattern, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 9, Theytaz et al. teaches of wherein said quantifiable attribute associated with said first speckle pattern corresponds to the number of speckles in said first speckle pattern, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 10, Theytaz et al. teaches of wherein said quantifiable attribute associated with said first speckle pattern corresponds to the amount of brightness measured by said first detector, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 11, Theytaz et al. teaches of further adapted to detect transverse movement of said optical device relative to said surface, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 13, Theytaz et al. teaches wherein said light at said first wavelength and said light at said second wavelength are provided from a single light source, wherein the wavelength of light provided from said single light source is adjusted from said first wavelength to said second wavelength during movement of said optical device from said first distance to said second distance, paragraphs 53-54.

As in claim 14, Theytaz et al. teaches wherein said light at said first wavelength is provided by a first light source and said light at said second wavelength is provided by a second light source, paragraphs 53-54.

As in claim 15, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the average speckle size of said first and second speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 16, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the number of speckles in said first and second speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 17, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the amount of brightness associated with said first and second speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 19, Theytaz et al. teaches wherein said first and second wavelengths are substantially the same, wherein said distance is measured using the ratio of said first quantifiable value and said second quantifiable value, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 20, Theytaz et al. teaches wherein said first and second wavelengths are different from each other, wherein said distance is measured using the difference between said first quantifiable value and said second quantifiable value and the difference between said first and second wavelengths,

paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 21, Theytaz et al. teaches wherein said light at said first wavelength and said light at said second wavelength are emitted from a single light source, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 22, Theytaz et al. teaches wherein said light at said first wavelength is provided by a first light source and said light at said second wavelength is provided by a second light source, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 23, Theytaz et al. teaches wherein said optical device comprises a single detector for detecting said first and second speckle patterns, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 24, Theytaz et al. teaches wherein said optical device comprises a first detector for detecting said first speckle pattern and a second detector for detecting said second speckle pattern, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 25, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the average speckle size of said first and second speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 26, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the number of speckles in said first and second

speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

As in claim 27, Theytaz et al. teaches wherein said first and second quantifiable values correspond to the amount of brightness associated with said first and second speckle patterns, respectively, paragraphs 53-54, paragraph 68-70, wherein the series of performance index measurements are compared to a minimum performance value.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis
May 14, 2007